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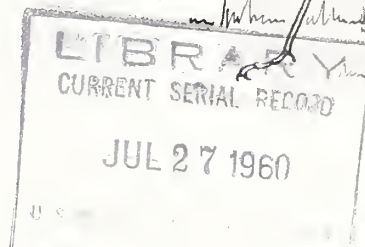
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NORTHEASTERN FOREST PEST REPORTER

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FOREST INSECTS

This year is marked by the familiar, but still mystifying, phenomenon of a diverse array of defoliating insects attacking the hardwood forests of the Northeast in impressive force. Few areas are untouched.

Some pests of known distinctiveness, such as the forest tent caterpillar and the gypsy moth, are on the upswing seemingly on their own impetus. Others less well known -- such as the orange-striped oak worm, red-humped oak worm, and species of Datana and Heterocampa -- are jointly continuing in abundance and comprise a coordinated team of great potential destructiveness. The effects of these insects have been added to by more or less local outbreaks of the fall cankerworm, eastern tent caterpillar, and certain leaf rollers -- these latter outbreaks may be a matter of chance or they may result from the same or related conditions. Regardless, the general picture is one of collective abundance and serious damage over a wide area.

The consistency of association of certain of these hardwood defoliators presents challenging possibilities for research. Their association indicates that they may be responding jointly to common factors affecting abundance. Study of these species particularly should provide very much needed information on the feasibility of one or more serving as a biological indicator for the entire complex. Such means of forewarning must be developed if we wish to take preventive as well as suppressive action against our forest pests.

SPRUCE BUDWORM (Choristoneura fumiferana). A total of 217,000 acres in northern Aroostook County, Maine, was sprayed in June for control of the spruce budworm. Top injury and growth loss in localities where heavy feeding occurred in 1958 and 1959, and a resurgence of budworm number in the general area justified the control action this year. The project was jointly financed by the State of Maine, timber land owners of the State, and the U. S. Forest Service.

Field laboratories were established at Portage and Sinclair where state and federal entomologists made daily collections to determine larval development on which timing of spray was based. Pre- and post-spray collections were made to evaluate the effectiveness of the spraying. Also, the regular larval and pupal surveys and parasite studies were conducted as previously.

Spraying began on June 7 when most larvae were in the fifth and sixth instars. It was completed on June 16. A 12 percent oil solution of DDT was applied at the rate of 1 gallon per acre. Six converted TBM's with a 725-gallon capacity each flew in pairs, each pair followed by an inspection plane. A Stearman biplane with a 150-gallon capacity sprayed near the edges of streams and lakes. Spraying operations were based at the Caribou airport.

Budworm mortality averaged about 99 percent.

BALSAM WOOLLY APHID (Adelges piceae) Larvae of the imported predaceous beetle Laricobius erichsonii were found on the Penobscot Experimental Forest, Maine, in condition and numbers indicating establishment there. They are expected to continue to multiply and disperse to surrounding fir trees infested with the aphid. Dispersion to date, however, has been very limited. The beetle is expected to be effective in controlling the stem phase of the aphid.

The aphid has spread slowly northward in Maine to the vicinity of Patten, with the trunk phase predominant in inland areas and the top or twig phase in the coastal areas. Infestations are currently light, although some trees are lost each year due to the accumulative effects of this pest. The twig phase is apparently increasing in the coastal areas.

Growth loss and some mortality continues in Vermont and New Hampshire due to stem attack.

PINE SAWFLIES Various species of Neodiprion and related forms are again especially abundant on planted and natural pines throughout the region.

Near Londonderry, New Hampshire, two species of Neodiprion are reported defoliating pitch pine. An unnamed species is common on pitch pine near Gray, Maine, also. Local heavy infestations of N. nanulus or N. pratti paradoxicus were found on pitch pine in Plymouth County, Massachusetts. Populations of the latter are definitely down from last year in southern New Jersey. The identification of the culprit in these various infestations remains to be confirmed.

Another species, N. pini-rigidae, is becoming more serious on pines in southern New Jersey. It appears to have two generations a year, but egg hatching of the first generation apparently occurs slightly later than emergence of larvae of N. pratti paradoxicus. On June 20, larvae of pini-rigidae were in the second instar, while those of pratti paradoxicus were fourth instar.

Virus sprayed against the European pine sawfly (N. sertifer) near Kresgeville, Pennsylvania, in 1958, was still present and showing lethal effects this year. This widespread pest of red and other hard pines is very common in southwestern Connecticut and in southern and western New York. Small-scale virus spray projects were undertaken against N. sertifer in Niagara, Herkimer, and Dutchess Counties, New York.

The Virginia pine sawfly (N. pratti pratti) is on the downgrade in Maryland. An extensive aerial survey of defoliation by this insect was conducted in late May by state and federal personnel in Maryland, Virginia, and North Carolina. The survey findings have not been finalized as yet, but defoliation was recorded in about the same areas as in 1959 when 14 million acres were noticeably attacked over the three states.

The introduced pine sawfly (Diprion similis) and its near relative D. frutetorum were observed on white and red pines respectively in central Connecticut and eastern Massachusetts.

The pine false webworm (Acantholyda erythrocephala) was found on white, red, and Scotch pines in the lower Hudson Valley and southern Connecticut.

Direct control of these sawflies is an easy matter, using a 6 to 12 percent solution of DDT at the rate of 1 to 2 gallons per acre with mistblower or aircraft. A new era is in the making, with virus sprays replacing or supplementing the chemical sprays as soon as they are developed.

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) Scotch pines in Crawford County, Pennsylvania, were reported lightly infested this spring, and in Westmoreland County both larvae and pupae were present on June 11. On this same date moth emergence was reported complete in Snyder County.

It is causing some damage to red and Scotch pine in the Herkimer District of New York and light to medium damage in the coastal areas of Maine from Freeport to Newcastle and Bailey Island.

WHITE-PINE WEEVIL (Pissodes strobi) Adult weevil activity had just begun the second week in April in Allegany County, New York, when an experimental pilot test of lindane and malathion was carried out on 70 acres of reforestation area using the Kiekens whirlwind portable mistblower. This was a joint project of the New York State Conservation Department and the U. S. Forest Service. The insecticides were applied at the rate of 1 lb. plus 1 lb. of Aroclor in 2 gallons oil solution per acre. Eighteen plots approximating 4 acres each were treated. On six of the 18 plots a yellow fluorescent dye was added to assist in checking spray deposit. The dye showed up very well in the field when viewed with a portable ultraviolet lamp.

The scattered weevil reports from the Northeast this year indicate about the usual intensity of attack. Leaders were showing signs of wilting by June 23 in New York, but it was too early to judge the extent of damage. A considerable acreage (no exact figure) was treated with lindane using the knapsack sprayer in St. Lawrence County and after treatment as many as 12 dead adults were found on a tip. A plantation of Austrian pine 4 to 6 feet high in Dutchess County is lightly infested this year. Connecticut reports the weevil apparently more than normally abundant this year; Rhode Island reports no outstanding infestations to their knowledge.

PINE LEAF APHID (Pineus pinifoliae) There is mortality of white pine, attributed to the pine leaf aphid, reported from Maine, New Hampshire, and Vermont, and many people alert to the damage this pest can do and has done say "I told you so." Apparently on the increase due to buildup in insect numbers or to the accumulated effects of infestation, or both, damage to pines is very apparent in eastern Maine. Worst hit is the area south of Lincoln and Topsfield and east of Bangor. Yellowing of 1959 shoots and thinness of crowns is very striking. Some trees 8 to 20 feet in

height have been killed; these are mostly suppressed trees or ones on poor sites. Increment cores from these trees reveal noticeable growth loss since about 1957. Large trees near Princeton showed yellowing and tip kill. In May the twigs were covered with current exsules (the feeding phase on white pine) and cast skins. In the University of Maine Forest at Orono, galls on red spruce were found in a very small area (this is supposedly the "off year" for spruce).

The general infestation extends westward into New Hampshire and Vermont. Some tree mortality, apparently pine leaf aphid-caused, is reported along the upper Connecticut River in northwestern New Hampshire.

MISCELLANEOUS INSECTS ON CONIFERS The pine needle miner (Exoteleia pinifoliella) is reported severely attacking pitch pine throughout Massachusetts. Browning is apparent on trees along the Massachusetts turnpike. It is reported moderate on pines in Sussex County, Delaware, also. Pine spittlebug (Aphrophora parallela) nymphs were common on Virginia and loblolly pines in Sussex and Kent Counties, Delaware, the first two weeks in June where they were reported abundant. In the southern counties of Maryland they were common on the same species of pine the last week of May. A noticeable infestation of pine needle scale (Phenacaspis pinifoliae) is reported from New Castle County, Delaware, on Virginia pine and spruce. The Cooley spruce gall aphid (Chermes cooleyi) is reported at abnormally high levels in Connecticut where it is becoming serious in Douglas-fir Christmas tree plantings. A long-standing infestation of the pine root collar weevil (Hylobius radialis) is reported causing serious damage to 35 to 40-year-old Scotch pines around the Croton, Cross River, and Byron Reservoirs in southeastern New York. Spotty infestations are reported in Scotch pine plantings in Franklin, Saratoga, and Warren Counties, also. Rhode Island reports three small infestations of the Pales weevil (H. pales) in the State. One was discovered in 1959 in a 3-acre plantation of white spruce following cutting of natural pitch pines in the area. The second is a new outbreak on the Providence Watershed District in Scituate (less than a mile from the 1959 infestation) on three acres of white pine, white spruce, and larch. The third covers two acres of new white pine plantation nearby on private land. Heavy spot attacks of Ips pini were reported from Schoharie and Jefferson Counties, New York, in red pine plantations, with some mortality of red pine in plantations in Saratoga and Washington Counties. Complete killing of four acres of red pine on Tug Hill was reported also. These attacks reportedly appear to have been in 1959 or before. The balsam fir sawfly (Neodiprion abietis) was found in greater abundance this year in central and northern Maine. The spruce bud moth (Zeiraphera ratzburgiana) occurred in more noticeable numbers in Maine also.

FOREST TENT CATERPILLAR (Malacosoma disstria) The extent of defoliation by the forest tent caterpillar is much reduced in Maryland and West Virginia. In these states and in Pennsylvania there is heavy defoliation reported locally, however. In New Kingston, New York over 5,000 acres of oak and other hardwoods were 90 to 100 percent defoliated. Interestingly, the heaviest feeding was on the oaks rather than on hard maple, which is generally a favored host when available. Light infestations are reported in Dutchess and Columbia Counties, as well as spots of heavy infestation in Cumberland County, Pennsylvania. Light defoliation occurred in the Hagerstown Valley and on the slopes of South Mountain in Washington and Frederick Counties, Maryland. It is locally abundant in Connecticut and light on maple in New Castle County, Delaware.

EASTERN TENT CATERPILLAR (Malacosoma americanum) There is heavy infestation by this pest reported in the Hudson Valley from New York City to Washington County where as high as 20 tents per tree were counted. Elsewhere in New York State only 2 to 3 tents per tree are reported, but apparently the infestation is on the increase. It is reported generally abundant throughout Pennsylvania. Populations are high but below the 1959 level on Maryland's Eastern Shore where the first egg hatch was on April 15.

GYPSY MOTH (Porthetria dispar) Continued efforts to control gypsy moth infestations in local areas were made by both state agencies and the Plant Pest Control Division, U. S. Dept. of Agriculture, using DDT for the most part. The New York State control project covered 11,000 acres in Saratoga, Schenectady, Albany, Montgomery, Washington, Warren, and Essex Counties. On June 8 the N. Y. State Conservation Department and the U. S. Dept. of Agriculture completed cooperative spraying of 8,000 acres in Delaware, Otsego, Herkimer, and Oneida Counties, using Sevin in oil suspension. A water suspension was abandoned due to formulation difficulties.

On May 11 some egg masses at locations in Truro on Cape Cod had hatched and larvae were still clustered around the old egg mass. On May 12 in central Massachusetts caterpillars had left the mass and were feeding. Approximately 1,800 acres were sprayed in Massachusetts during May. Gypsy moths are locally very abundant in Connecticut, and a total of 2,400 acres were treated in New Jersey. In Connecticut 20,000 acres were sprayed in May and early June.

OAK LEAF ROLLER (Agyrotoxa semipurpurana) A special aerial survey was conducted on June 30 and July 1 by the Plant Pest Control Division of ARS and the New Haven Forest Insect Laboratory to determine the extent of infestation by the oak leaf roller, Agyrotoxa semipurpurana in southwestern Massachusetts and adjoining portions of Connecticut and New York. Aerial reconnaissance for this pest was suggested by personnel of the Massachusetts Bureau of Insect Pest Control. The survey indicated that noticeable defoliation was limited to several hundred acres of forest in the town of Mount Washington, Mass. No additional defoliation by this insect was detected. Spot infestations were seen on the ground, however, in northwestern Connecticut.

Adult moths were very numerous on the undergrowth beneath defoliated trees on June 30. Black, red, and scarlet oaks had been defoliated by varying degrees, but no trees had been stripped. Refoliation had begun on the damaged trees by June 30. This same insect has been reported damaging oaks in Pennsylvania and western Massachusetts in 1958 and 1959 (see PEST REPORTERS 1958 and 1959). New York reports a leaf roller responsible for defoliation of several hundred acres of pin oak in the Kingston-New Paltz area.

MISCELLANEOUS INSECTS ON HARDWOODS The birch leaf miner (Fenusa pusilla) continues to heavily infest gray birch in the region. Reports indicate it is becoming more serious on paper birch as well, especially in Maine and southern New Hampshire. Both the orange-striped oakworm (Anisota senatoria) and the red-humped oakworm (Symnerista albicosta) are present in noticeable numbers in Connecticut. The fall and spring cankerworms (Alsophila pometaria and Paleacrita vernata) caused considerable defoliation of hardwoods in Hartford, New Haven, and Fairfield Counties, Conn., in late May and early June. Elsewhere in Connecticut it was reported as light to moderate. The solitary oak leaf miner (Cameraria hamadryadella) does not appear as prevalent this year except in Fairfield County where it is heavy. The bronze birch borer (Agrilus anxius) is suspected of killing some weakened yellow birch trees in southern New Hampshire. An oak skeletonizer (probably Bucculatrix ainsliella) is heavy on oak in the town of Dryden, Tompkins County, New York. A light but very prominent occurrence of Prionomerus calceatus, a leaf mining weevil, on tulip trees

in Westchester County, New York has been reported. Identification was verified by Dr. J. Wilcox of the New York State Museum and Science Service. The tents of the ugly nest caterpillar (Archips cerasivorana) were prominent on cherry in Aroostook and Penobscot Counties, Maine, on June 14, but the insect is reported as much reduced in eastern Massachusetts.

FOREST DISEASES

The abundance and severity of forest diseases, as well as a few environmental troubles, depend to a large degree upon previous weather conditions. Over much of the Northeast weather was cold and the ground frozen from the first of the year through the month of March. The amount of snow cover varied widely. Where snow was light, the rains were cold and subfreezing weather followed soon afterward, which resulted in the ground being almost continuously frozen, with few or very brief periods of shallow winter thaws. As a result, winter burning of conifers was common and widespread, but not especially severe, and little damage occurred. The month of April was generally quite wet -- a condition that extended throughout May, when temperatures had generally reached a level favorable for growth. April night temperatures were too low to permit early spring growth over much of the area. Enough temperature variation occurred, however, over the entire region, so that the spring growing season was considered early in some locations and late in others. Rainfall from April up to the present has generally been above average and well distributed in time so that no spring drought has occurred.

The following summary probably holds for most of the Northeast: cold or sub-normal temperatures were general from January through March; April temperatures were generally above average; May temperatures, generally cool or below normal. Frequent rains prevented leaves from drying and resulted in weather favorable for many foliage diseases such as anthracnoses and many of the rusts. The cool weather, with no prolonged hot spells, somewhat slowed the development of many of the diseases or prolonged their periods of sporulation. Some later appearing diseases, such as horsechestnut leaf blotch, etc., may be expected to be fairly severe unless periods of hot, dry weather occur to slow their development.

FOLIAGE DISEASES The anthracnoses. Abundant and frequent rains during May and June created favorable conditions for the anthracnoses. The anthracnoses vary in severity but none have resulted in complete defoliation. Sycamore anthracnose, the most common and serious reported, is widespread in the New England states, New York, Pennsylvania, and Maryland. It is moderate to severe in intensity, although not nearly as severe as it was in 1958. Oak anthracnose is showing up in abundance in New England, New York, and Pennsylvania, especially on white oak. In eastern Massachusetts it was reported on red oak. In New York it is general in Ulster County, very heavy in the Phoenicia section; elsewhere moderate in amount. Ash anthracnose seems light and somewhat infrequent and has been noted in the New England states and southeastern New York. Other anthracnose hosts reported include maple from Pennsylvania and Massachusetts. In eastern Massachusetts the maple hosts include Norway, sugar, and red maples. A report of hickory anthracnose was received from Massachusetts.

Taphrina spp. There are indications that several diseases, caused by Taphrina sp., may be on the increase. General weather conditions have been favorable for them.

Leaf spots. A Phyllosticta sp. is the cause of a leaf spot of Rhododendron reported from Massachusetts. In New Hampshire a Septoria sp. is causing a leaf spot disease of seedling paper birch, and the fungus Gonatobotryum maculicola is causing rather abundant leaf spot on witch hazel in southern Maine. In fact, the report from

New Hampshire says leaf spots are abundant on many species. Dogwood petal blight, caused by Botrytis cinerea has been observed in the Boston area and according to the Waltham Shade Tree Laboratories this is the first time during the past six years this disease has been brought to their attention. Ink spot is reported to be causing light injury to aspen in some areas of southern Maine.

WILTS Dutch elm disease is again widespread throughout the Northeast. Its incidence is variable with pockets of infection noted in some localities, but generally a scattering of wilted trees occur. According to several observers either symptoms are less severe, incidence is less than last year or, the disease is slower in developing this year. There has been an increase in the number of wilted trees noted during the latter half of June. The intensity of the disease appears to be relatively high in southeastern New York State. A report from Massachusetts says its incidence throughout that State is about normal, as is the case in northern Maryland where it is again evident. Maine reports finding Dutch elm disease this spring in Mechanic Falls -- a new location for the State. The same source indicates an increased interest, by towns and cities in the State, in Dutch elm disease and other shade tree troubles.

Verticillium wilt. Only a few reports of the disease have been received although it probably is widely scattered throughout the region. Internal discoloration, characteristic of the disease, was reported from Syracuse, New York, in Norway maple. Maryland reports Verticillium wilt of maples in the northern part of the state.

Oak wilt. A Pennsylvania report states the heavy and frequent spring rains appear to have delayed symptoms; with the advent of a few days of clear sunny weather, wilt symptoms seem to appear overnight.

Mimosa wilt. Three cases of Mimosa wilt were reported from Salisbury, Maryland in June.

RUSTS Weather conditions were generally favorable for rust development and host infection. Cool temperatures prolonged the period of spore production of different rust species and the various stages of their life histories.

White pine blister rust. Preliminary reports indicate abundant aecial production over much of the Northeast. A report on blister rust development near Tully, New York shows its developmental trend in the Northeast. At this location aecia appeared by May 12 and were being produced in early June. Aeciospores were plentiful. The cool and very wet weather probably lengthened the period of spore production. The uredospore stages on ribes were well developed by June 3. This is considered somewhat early for the area. Another report from New York states that 425,000 acres of control area had been scheduled for attention in 1960. Of this acreage, 150,000 were found not to be in need of ribes eradication, which leaves 275,000 acres to be worked during the summer months. A blister rust hazard map is being prepared for the State. Work with the antibiotic Acti-dione indicates that it has not been as successful in killing blister rust infection of eastern white pine as it has on western white pine. Some of this difference in effectiveness is believed to be due to the solvent used (eastern kerosene) in the formulations. This solvent causes the antibiotic to be precipitated. Investigations are being conducted to find a more effective solvent for eastern use. The newer antibiotic Phytoactin is also being investigated.

Eastern gall rust. This rust was reported on several Scotch pines in a Newcastle plantation in Maine. Positive identification was not made and there is a possibility that it may be the same as the so-called Woodgate rust.

Cronartium fusiforme. This rust is causing concern in loblolly plantations on the lower Eastern Shore of Maryland. Complaints have been received from nine sources this year. Aeciospores appeared on April 20.

Gymnosporangium rusts. These were well distributed in our region, but no reports of unusual abundance of these rusts have been received. It is generally believed that they are less noticeable than usual. Cedar-apple rust was reported from Lancaster County, Pennsylvania. Apple leaf infections were reported from Delaware on June 10. Occasional brooming of red cedar, caused by Gymnosporangium nidus-avis occurs on red cedars on the Scituate watershed in Rhode Island.

A report of the aecial stage of Melampsora abietis-canadensis on young cones and young tender twigs of eastern hemlock was received from Lancaster County, Pennsylvania. A minor trouble on hemlock reported from northern Maryland is believed to be a rust although the species was not identified. This same species might be involved.

Ash leaf rust. Moderate infection by this rust is reported from the coastal region of Massachusetts and Rhode Island. A report of ash rust has been received from Maryland and it has been noted in Connecticut also.

Leaf rust of red pine. Maine reports this disease as very heavy in plantations in central and northern parts of the state. It is also reported from Amherst, Massachusetts. A New Hampshire report states that needle rust is very prevalent on pitch pine; also, that red pine leaf rust is present on the Fox Forest.

CANKERS Maine reports Nectria canker as one of the principle pests associated with Norway maple shade trees in Lewiston, Fairfield, and Skowhegan. A report from New Hampshire tells of observing the hyperparasite, Gonatorrhodiella highlei, on a few of several hundred trees examined for the beech-scale-Nectria disease, which is common in the state. Both Hypoxylon and Nectria cankers were common on trembling aspen near Hillsboro, New Hampshire. Fresh cankers of black knot on cherry and plum (Dibotryon morbosum) were reported from several sources in New England. Cytospora canker was reported from Milton, Sunderland, and Hamilton, Massachusetts. It was also observed in a number of other places in New England and New York.

Other cankers. Several little known or relatively unimportant cankers were reported for this issue of the PEST REPORTER. From New Hampshire: Hypoxylon rubiginosum seems common on wounds on beech; the fungus Exidia glandulosa occurs commonly on trees weakened by beech scale and Nectria cankers; new infections of Hymenochaete agglutinans were observed; and finally, the fungus Septobasidium pinicola occurs commonly in thick white pine stands. Although not producing a canker this latter fungus somewhat resembles, and might be mistaken for, small bark cankers. The same species was reported from Bernardston and Norton, Massachusetts.

The following report by Alex Shigo may be of interest as a stimulus for further observations on hemlock troubles. This particular trouble was briefly mentioned in the July 10, 1958 issue of the PEST REPORTER, but as far as known this is the first report of a Leptographium sp. reported as associated with a canker on hemlock. Shigo reports, "A Leptographium sp. was isolated from several dead and very weakened trees in Alfred, Maine. The fungus caused a cambial necrosis and also grew into the wood. The fungus was also isolated from a stump cut in 1959. The bark was stained from 'bleeding' near patches killed by Leptographium sp. -- many large trees have died in this area in the last five years. Observation of growth rings showed that growth had stopped only in those areas infected by Leptographium sp."

ROTS Fomes annosus root rot. Infected areas in New England and New York show the presence of widespread fruiting. Old conks of the fungus showed new growth developing in early May. Such new growth is quite conspicuous on developing conks in June, and a resumption of growth from old conks and the formation of "button" and pustule-like fruiting bodies is now generally evident. With few exceptions shelving conks have not yet developed. The perennial nature of F. annosus fruiting bodies is showing up to a greater degree than usual, but is mainly limited to the old conks at,

or below, the duff level. The wet weather in May and the first half of June undoubtedly was favorable for such growth. Bracket-like conks, whose development above the duff layer is less frequently found than the aborted, irregular fruiting bodies of the fungus, or the resupinate conks produced in hidden situations, show little or no tendency for additional development. Such conks are usually annual.

THE PEST REPORTER is indebted to Dr. Henry Baldwin for permission to include results of a survey for F. annosus made last season in New Hampshire. The survey, made by Mr. Orson K. Miller, Fox Forest Research Fellow, revealed 17 locations for F. annosus in the State of New Hampshire. All but one infection center was in the southern third of the State. The exception was an infection about midstate, in the Baker State Forest, at Rumney. It is believed that the greater incidence of F. annosus in the southern part of New Hampshire may be due to the greater number of planted stands, and the presence of older, thinned stands in this part of the State. The relation of thinning to invasion by F. annosus is shown by the fact that 68 percent of the thinned stands had infections, as contrasted with 6.5 percent of the 30 unthinned stands in which the fungus was found. Previous to Miller's survey, F. annosus was known from three general areas. The oldest record known to us was a collection of the fungus by Dr. Spaulding from white pine, near Peterboro, New Hampshire, on May 26, 1930. Host records from New Hampshire now include red, white, and Scotch pine.

Fomes annosus is present in many plantings on the New York City watershed area in plantations in Westchester, Putnam, and Dutchess Counties. Infections are present in a large proportion of the red pine plantings, but vary in intensity. Age of such plantings vary, the oldest being about 40 years. F. annosus infections have also been found in white and Scotch pine, and larch plantings. A report from Rhode Island says F. annosus is prevalent in 15- to 30-year-old red pine plantations in the watershed district of Providence, where an estimated 30 percent of the plantations are infected by the disease. It has also been detected in white pine plantings, but to a lesser degree. In the same area about two acres of white spruce, 15 to 20 years old, is dead or dying from unknown cause but which may involve F. annosus. New infections have been located and verified in red pine on the State Reforestation Area, Cortland #2, and on the Fort Edward Watershed in Saratoga County, New York. Trials of stump treatment with creosote showed the effects of such efforts largely nullified by damage of the treated stumps by heavy equipment used in skidding out thinnings. In addition to areas in Pennsylvania reported last year, F. annosus root rot has been found on three sites in Berks County -- one red pine plantation in particular has a high incidence of stump invasion and mortality of the residual stand.

Other root rots. A recent visit to conifer plantations in Dutchess County, New York, revealed that root rot caused by Polyporus tomentosus was present in moderate amounts in Norway spruce, white pine, and red pine plantings. As a result there are some blowdowns. It seems probable that losses from P. tomentosus root and butt rot may be greater than hitherto suspected. Limited amounts of root and butt rot, presumably caused by P. schweinitzii, were also present especially in a small section of a Norway spruce planting. No fruiting bodies were present and no cultures were made to confirm the suspected presence of P. schweinitzii. The type of rot present, however, was typical. Armillaria mellea root rot was reported affecting maples in Amherst and white pines in Bernardston, Mass. Polyporus squamosus was observed fruiting on a butternut tree in Dutchess County, N.Y. This is an unusual host for the fungus.

WHITE PINE TROUBLES White pine decline. Further dying of trees has shown up this spring in the Wiscasset area of Maine. This trouble has been reported in previous issues of the PEST REPORTER. The condition is apparently also present in the South Freeport area.

White pine needle blight. A report from New Hampshire says the indications are that this trouble may become more prevalent if we get some real hot sunny weather. Rainfall has been abundant and heavy foliage has developed. Symptoms of needle blight have been noted in many other New England areas. It appears to us that it is more abundantly evident than usual.

White pine forking. This trouble, mentioned in previous issues of the PEST REPORTER, is causing greater concern than ever. Its cause has not been determined. Apparently it occurs widely throughout New England and New York. Fungi, insects other than white-pine weevil, genetic, environmental, and physiological causes have been suspected, as well as bird damage by Grosbeaks, etc. Unexplained forking conifers, including the spruces and other pine species, have been reported, although not with the same concern as the forking of white pine.

DIEBACKS Most of the dieback problems are still with us, including those observed or reported on maple, oak, hickory, beech, and ash. We wish to stress ash dieback in this issue. It has been generally considered as widely distributed on exposed trees, such as those along roadsides, in meadows, and fence row trees. In southeastern New York it occurs in woodland trees and is causing serious losses. Salvage cuttings are being made because of ash dieback. Commercial damage to woodland ash trees centers in Putnam, Dutchess, and Columbia Counties. No correlations are evident to degree of exposure, site, soil moisture, age, soil fertility, or known insect defoliations or drought conditions. In this area of heavy damage green ash is also affected, but to a lesser degree than the white ash. A survey is being made by personnel of the Division of Lands and Forests in cooperation with the New York State College of Forestry. The purpose is to obtain information regarding present range and intensity of the trouble and to collect environmental data which may be useful in future studies.

MISCELLANEOUS TROUBLES Browning of balsam fir. Extensive browning of balsam fir has been observed in the South Arns and Rangely areas of Maine since last summer. Whole trees are not affected, but brown dead branches are scattered. Dasyscypha resinaria has been tentatively identified as a commonly associated fungus, fruiting at the junction of branch and stem.

Norway maple twig blight. In the vicinity of Syracuse, New York, on many otherwise healthy-appearing Norway maples, the tips of many branches have died back approximately 12 inches. Buds had begun to swell but were killed. A very few partly dead tips seem to show slight recovery. The dead buds had a disagreeable odor. Verticillium wilt is apparently not involved.

Other miscellaneous troubles and diseases reported for this issue include planting too deep, earth fill, herbicide injury, root girdling, winter injury, chestnut blight, and fire blight, all from Massachusetts. Maine reported maple leaf scorch rather abundant on sugar maples in Aroostook County. Limited amounts of leaf scorch have been observed in widely scattered areas of New England. It appears as one aspect of the maple dieback complex.

WINTER INJURY Snow damage. Maine reports heavy wet snow commonly caused limb breakage in large white pines, and caused limbs to break from the main stem in young stands of white pine. Similar conditions, combined with heavy glaze, caused extensive breakage of the softer hardwoods, such as red maples, willows, and poplars, in the snow belt running north and south between Albany and Syracuse, New York. Snow damage was light in New Hampshire, but frost injury on young trees was noted in several areas.

Winter drying, or winter burn of conifers. Winter drying was quite extensive in range on conifers, but not very serious. Maine reports a browning of red spruce and some balsam fir from the Jackman area. All sizes of trees were affected, interspersed among unaffected trees. While winter drying was suspected, the injury was not quite typical. New Jersey reported the trouble more severe than usual in southern New Jersey, Delaware, and eastern Maryland. In southern New Jersey short-leaf and pitch pines developed some browning, while foliage of plantation loblolly pines was also affected. Greater damage was noticed on exposed loblolly pines in southern Delaware and eastern Maryland. Exposed ornamentals were similarly damaged. Reports from Maryland indicate its presence in central and southern parts of the State, as well as the Eastern Shore. Winter burning was observed in the Pocono region of eastern Pennsylvania, where roadside trees and trees in more exposed situations were affected. When plantation trees were affected, trees at the edges and the tops of some of the plantation trees showed evidence of burn, but trees inside the planting showed little or no evidence of burning. The species involved were white pine, red pine, and some pitch pine. Winter burn is induced on conifers when the frozen soil cannot replace the water loss from foliage, particularly on exposed sites subject to drying winds.

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DEATH OF DR. PERLEY SPAULDING

It is with deep sorrow that we, of the Forest Insect and Disease Laboratory in New Haven, announce the death of Dr. Perley Spaulding. The following brief biographical sketch was prepared by Dr. J. R. Hansbrough, Director of the Division of Forest Disease Research, Washington, D. C.

PERLEY SPAULDING 1878 - 1960

Dr. Perley Spaulding was born September 19, 1878, in South Royalton, Vermont, and died June 12, 1960, in Hartford, Connecticut. During the intervening years he compiled a record of service to forestry in North America that will be seldom equalled and rarely excelled. His early days on a Vermont farm and adjacent wooded hills instilled in him a love of nature that shaped his later life as botanist and forest pathologist. After graduating from the University of Vermont in 1900, he held positions briefly in Maine and Connecticut and then in 1902 reported for duty at St. Louis, Missouri, as Scientific Aid in the Bureau of Plant Industry, U. S. Department of Agriculture. With the exception of about one year in 1913-1914 with the Federal Horticultural Board, he continued with the Bureau until his retirement in 1948. In 1907 he transferred to Washington, D. C., in 1925 to Amherst, Mass., and in 1932 to New Haven, Connecticut. In each of these positions he worked closely with Federal and State forestry officials to improve disease control in the management of forest lands.

During this period that spanned almost half a century, Dr. Spaulding published about 180 papers -- USDA bulletins and articles in technical journals -- on the cause and control of forest tree diseases. His major contribution was on white pine blister rust, a disease introduced into this country from Europe and first discovered on planted white pine in New York in 1909. He was primarily responsible for the very effective control program that was initiated that year and is still in use.

After retirement in 1948 Dr. Spaulding accepted an appointment as Collaborator with the U. S. Department of Agriculture and continued his lifetime review of the literature on forest tree diseases of the world. In the following years he published two comprehensive Agriculture Handbooks, respectively on the diseases of North American forest trees planted abroad and on the diseases of foreign trees planted in North America. A few months before his death he completed the manuscript for the third and final volume in the series, an annotated list of the forest tree diseases of the world and of their potential importance if introduced into North America.

Dr. Spaulding will be remembered by his friends and associates for his simplicity, steadfastness, and devotion to duty. To all others his many informative publications serve as a lasting monument to a life well lived, a race well run.

J. R. H.

June 20, 1960